

**Division 1:
Prehospital
Environment**

Section 5. EMS Communications

Introduction

The student must have successfully completed the following sections prior to participating in this section:

Section 1. Roles and Responsibilities

Section 2. EMS Systems

Section 3. Medical/Legal Considerations

Section 4. Medical Terminology

There are many ways in which the EMT-I communicates. This section of the curriculum is meant to deal specifically with communication through written or spoken words, as this is the form of communication by which information is transmitted all along the EMS chain. This section covers knowledge of technical aspects of communication equipment and rules governing radio transmission as well as actual content and techniques of written and verbal communication of patient information.

Overview

I. Communications Systems: Technical Aspects.

A. Communications System Components

B. Radio Communications

C. Equipment Maintenance

II. Rules and Operating Procedures

A. Regulatory Agencies

B. Rules and Regulations

C. Dispatch Procedures

D. Radio Communications Techniques

III. Communication of Medical Information

A. Medical Protocols

B. Communication of Patient Information by the EMT

IV. Techniques of Management: Communications Skills

A. Use of Mobile and Portable Transmitter/ Receiver

B. Use of a Digital Encoder

C. Transmission of Patient Assessment Information and Telemetry

Objectives

At the completion of this section, the student will be able to:

1.5.1 Describe the phases of communications necessary to complete a typical EMS event.

1.5.2 Name the possible components of an EMS communications system and explain the function of each.

1.5.3 Describe maintenance procedures for the field radio equipment.

1.5.4 Describe the position of the antenna on a portable transmitter/receiver that will deliver maximum coverage.

1.5.5 Describe an advantage of a repeater system over a nonrepeater system.

1.5.6 Describe basic functions and responsibilities of the Federal Communications Commission (FCC).

1.5.7 Describe the responsibilities of an EMS dispatcher.

1.5.8 Name information items that *must* be gathered from a caller by the dispatcher.

*1.5.9 Describe the ten-code used in the local community.

* Indicates optional

- 1.5.10 Describe three communications techniques that influence the clarity of radio transmissions.
Describe three communications techniques that influence the content of radio transmissions.
- 1.5.12 Describe the importance of written medical protocols.
- 1.5.13 Describe two purposes of verbal communication of patient information to the hospital.
- 1.5.14 Describe information that should be included in patient assessment information verbally reported to the physician.
Organize a list of patient assessment information in the correct order for radio transmission to the physician according to the format used locally.
- 1.5.16 Name five uses of the written EMS run form.
- S1.5.17 Demonstrate the proper use of a mobile transmitter/receiver to receive and transmit information.
- S1.5.18 Demonstrate the proper use of a portable transmitter/receiver to receive and transmit information.
- S1.5.19 Demonstrate the proper use of a digital encoder.
- S1.5.20 Demonstrate the proper use of a mobile or portable transmitter in a real or simulated patient situation to:
 - a. Organize and transmit patient assessment information, using a standardized format
- S1.5.21 Properly complete a written EMS form based on a real or simulated patient situation.

Introduction

- A. Steps in the progression of a typical EMS event include:
 - 1. Occurrence
 - 2. Detection
 - 3. Notification and response
 - 4. Treatment and preparation for transport
 - 5. Transport and delivery
 - 6. Preparation for next event
- B. Communications links in the EMS chain necessary to accomplish the above steps include:
 - 1. Communications between party requesting help and the dispatcher
 - a. Via the public telephone system—preferably 9-1-1—or some other widely publicized emergency number
 - b. Via nonpublic telephone or radio from another emergency agency (police, fire)
 - 2. Communications between the dispatcher and the EMT team
 - a. Alert response personnel and direct to scene
 - b. May be telephone notification, voice radio communication, or radio paging (tone, digital)
 - 3. Communications between the dispatcher and public safety units, local hospitals, and other community agencies
 - 4. Communications among EMT's in the field
 - 5. Communications between EMT in the field and receiving hospital and/or medical control physician
 - a. Early alert of hospital for arrival of patients
 - b. Receiving advice regarding transport and orders for medical treatment
- C. Purpose of this section: to make the EMT-I knowledgeable and proficient with the equipment and procedures used in all the stages of EMS communications to maximize emergency medical care of the patient

Communications Systems: Technical Aspects

Communications System Components

- A. Communications systems vary greatly in complexity
 - 1. Simple systems may include:
 - a. Self-contained desktop transmitter/receiver
 - b. Speaker
 - c. Microphone
 - d. Antenna
 - e. One-piece dashboard-mounted vehicle radio with single channel capabilities
 - 2. Complex systems may include:
 - a. Remote consoles
 - b. High power transmitters
 - c. Repeaters
 - d. Satellite receivers

INSTRUCTOR'S NOTES

Including notification of
medical facility.

Especially important in
rescue and multiple casualty
situations.

Equipment Maintenance

- A. Handling:
 - 1. Do not subject radio equipment to harsh environments if possible
 - 2. Dusty conditions, damp or wet conditions, and dropping radio equipment are among the most frequent causes of equipment failure
- B. Cleaning:
 - 1. Frequent cleaning of radio equipment will improve appearance and life expectancy
 - 2. Use only a slightly damp rag with very mild detergent (no cleaning solvents) on exterior surfaces of radio equipment
- C. Repair:
 - 1. When malfunctioning, radio equipment must be referred to a licensed technician
- D. Batteries:
 - 1. Rechargeable batteries in portable equipment (monitor/defibrillators included) must be used properly to maximize life and power output
 - 2. Nicad rechargeable batteries must be properly "exercised" for best results

Rule and Operating Procedures

Regulatory Agencies

- A. Federal Communications Commission (FCC)
 - 1. Federal agency established to control and regulate all radio communications in the U.S.
 - 2. Primary functions are:
 - a. Licensing and frequency allocation
 - b. Establishing technical standards for radio equipment
 - c. Establishing and enforcing rules and regulations for radio equipment operation
 - i. Monitor frequencies for appropriate usage
 - ii. Spot check base stations and dispatch centers for appropriate licensing, records, etc.
- B. State and local governments may have additional requirements for radio operations
 - 1. Regional plans to ensure cooperation of all radio users
 - 2. Minimum equipment standards for ambulance licensure

Dispatch Procedures

- A. All procedures used must fall within Federal, State and local guidelines
- B. Responsibilities of the dispatcher include:
 - 1. Obtaining as much information as possible about the emergency (often from a distraught caller)
 - 2. Directing the appropriate emergency vehicle(s) to the correct address
 - 3. Monitoring and coordinating communications among everyone in the system
 - 4. In some instances, instructing the caller in measures that should be taken until assistance arrives
 - 5. Maintaining written records
- C. Dispatch personnel may be responsible for EMS events only or may dispatch for police, fire, and EMS in any combination

INSTRUCTOR'S NOTES

Refer to manufacturer
recommendations for proper
exercising methods and
intervals.

See Emergency Medical
Services Dispatcher National
Standard Curriculum
(Second Edition) 1983.

- D. Dispatcher must make appropriate decisions regarding which response vehicles to send
 - 1. Must know location of all vehicles
 - 2. Must know capabilities of various vehicles
 - 3. Must determine if any support services necessary
- E. Dispatcher must know what information is essential to gather from caller prior to dispatching vehicle.
 - 1. Location and nature. Vehicle can be dispatched as soon as these are known
 - 2. Call-back number also high priority in case of accidental telephone disconnection
 - 3. Sample of logical order for questioning caller about an EMS event to insure adequate information:
 - a. Caller's name and call-back number
 - b. Address of event
 - c. Nature of event

Dispatch First Ambulance

- d. Is victim unconscious, not breathing, bleeding severely?
- e. Is victim trapped? Is there a fire or other hazard?

Update Ambulance Crew and Dispatch Support Help

- f. Determine whether caller needs to, and is competent to, carry out immediate emergency care measures.
- F. Complete dispatcher training for the EMT-I available in the EMS Dispatcher National Standard Curriculum

Codes

- A. Used by some EMS systems alone or in combination with clear English
- B. Advantages of codes
 - 1. Can shorten radio air time
 - 2. Provide unambiguous information
 - 3. Enable transmission of information in a format not understood by patient, family, or bystanders
- C. Disadvantages of codes
 - 1. Useless unless everyone in system understands
 - 2. Medical information is often too complex to use codes
- D. Ten-code
 - 1. A system of codes utilizing the number 10 plus another number to indicate a specific message
 - 2. Numbers are brief and easily understood and therefore speed up communications
 - 3. Local decision must be made about which specific list of ten-codes will be used, if any
 - 4. Associated Public Safety Communications Officers (APCO) publishes a widely used ten-code, recommended primarily for dispatcher use
 - 5. Codes discouraged for communication of medical information

INSTRUCTOR'S NOTES

Follow local protocols.

See bibliograhpy.

Optional section.

**Radio Communications
Techniques**

- E. Review of codes used by local EMS (if any)
- F. Remember: Plain English often works as well or better than codes
- A. Proper radio use results in efficient, professional communications
 - 1. Transmissions must be clear
 - 2. Content of transmission should be concise and professional
- B. General guidelines regarding clarity of transmissions
 - 1. Listen to the channel before transmitting to be sure it is not in use
 - 2. Press the transmit button for one second before speaking
 - 3. Speak at a close range (2–3 inches) directly into or across the face of the microphone
 - 4. Speak slowly and clearly. Attempt to pronounce each word distinctly, avoiding words that are difficult to hear
 - 5. Speak in a normal pitch, keeping your voice free of emotion
 - 6. Be brief. Know what you are going to say before pressing the transmit button
 - 7. Avoid codes unless they are part of your system
 - 8. Do not waste air time with supercilious phrases
- C. General guidelines regarding content of transmissions
 - 1. Protect the privacy of the patient. When appropriate:
 - a. Use codes
 - b. Use telephone rather than radio
 - c. Turn off external speaker or radio
 - d. Avoid use of patient's name
 - 2. Use proper unit numbers, hospital numbers, proper names and titles
 - 3. Do not use slang or profanity
 - 4. Use standard formats for transmission
 - 5. Utilize the "echo" procedure when receiving directions from the dispatcher or physician orders
 - 6. When completing a transmission, obtain confirmation that your message was received

**Communication of Medical
Information**

- A. Written protocols
 - 1. Predetermined guidelines for the EMT-I on prehospital medical care
 - 2. Should be developed by the medical group responsible for medical control
 - 3. Varies greatly from system to system:
 - a. Obviously ill patient refusing treatment/transport
 - b. Uncertainty if continuation or termination of resuscitation is appropriate (i.e., questionable "Do not resuscitate")
 - c. Difficulty with non-EMS physician who is interfering at the scene

**Communication of Patient
Information by the EMT-I**

- A. Verbal communication
 - 1. May occur via radio or landline
 - 2. Purpose:
 - a. To provide hospital with enough information regarding patient's condition to begin preparations for care
 - b. To obtain medical orders for patient treatment in the field

INSTRUCTOR'S NOTES

May be acceptable in some localities.

The immediate repetition of information to assure accuracy.

3. Use of standard format for transmission of patient assessment information
 - a. Allows efficient use of medical communications system, i.e., limits radio air time
 - b. Allows physician to quickly receive and assimilate information regarding patient's condition
 - c. Assures no significant information is omitted
 4. Format should be brief and concise. Should include:
 - a. Unit call name and number or name of EMT-I
 - b. Description of scene
 - c. Patient's age and sex
 - d. Patient's chief complaint
 - e. Associated symptoms
 - f. Brief, pertinent history of the present illness
 - g. Pertinent past medical history, medications, and allergies
 - h. Physical exam findings, including:
 - i. Level of consciousness
 - ii. Vital signs
 - iii. Neuro exam
 - iv. General appearance and degree of distress
 - v. Trauma index or Glasgow Coma Scale (if applicable)
 - vi. Other pertinent observations, significant positive and negative findings
 - i. Treatment given so far
 - j. Estimated time of arrival at hospital
 - k. Name of private medical physician
 - l. Await further questions and orders from base physician
 5. Remember: When communicating with the physician from the field, the EMT should:
 - a. Be accurate and complete in reporting
 - b. Provide additional information when requested
 - c. "Echo" back orders given by physician
 - d. Question orders that are not clear or do not seem appropriate for the patient's condition
 - e. Report back when orders have been carried out, and indicate patient response
 - f. Keep physician informed of any changes in patient condition
 - g. Consult with physician when transport of the patient is not deemed necessary
 - h. Protect patient privacy
 - i. In addition to usual base communication contact procedures, consult with physician *any* time you are uncertain of what course to take
 6. Verbal communications also include brief report of patient information to person assuming care of patient at hospital
- B. Written communications (EMS forms)

INSTRUCTOR'S NOTES

Per local protocol.

Location, number of victims (always describe the worst first). Order of information varies depending on severity of patient's condition.

Length of report & amount of information may vary depending on problem, situation, or number of victims.

Local option

1. A document developed by State or local EMS
2. Purpose:
 - a. Written record of patient's initial condition that remains at hospital after EMT's have left
 - b. Legal record of medical treatment rendered patient in prehospital phase of care
 - c. Documentation of patient's refusal of care and/or transport
 - d. Other uses:
 - i. Medical audits
 - ii. Quality control
 - iii. Data collection
 - iv. Billing.
3. EMS forms must be:
 - a. Complete
 - b. Legible
 - c. Signed by EMT

**Techniques of
Management:
Communication Skills**

- A. Use of a mobile and portable transmitter/receiver
 1. Turn the unit on
 2. Adjust the squelch (if available)
 3. Listen to be sure the airways are free of other communications
 4. Hold the microphone within the unit at a proper distance from the mouth and maintain a vertical antenna position
 5. Push the transmit button and pause before speaking
 6. Call another unit using proper unit I.D. numbers
 7. Upon termination of communication state that you are clear of the channel so other users may transmit
- B. Use of a digital encoder
 1. Turn the unit on
 2. Adjust the squelch
 3. Listen to be sure the airways are free of other communications
 4. Select the address code to be dialed
 5. Dial the selected code numbers
 6. Hold the microphone at a proper distance from the mouth
 7. Push the transmit button and pause before speaking
 8. Call the unit dialed using assigned unit I.D. numbers
 9. Upon termination of communication state that you are clear on the channel, so other users may transmit
- C. Transmission of patient assessment information
 1. Turn the unit on
 2. Adjust the squelch
 3. Listen to be sure the airways are free of other communications
 4. Hold the microphone a proper distance from your mouth
 5. Push the transmit button and pause before speaking
 6. Call the physician, using proper unit I.D. numbers
 7. Following local procedures and protocols, relay patient assessment information to the physician

INSTRUCTOR'S NOTES

Separate release forms may be used in some localities.

Due to the vast number of manufacturers & models of equipment, the steps below provide only general guidelines for operation. Variations in procedure & specific explanations are expected.

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